3/3   042   UNCLASSIFIED   PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0105639
ABSTRACT/EXTRACT--TREATMENT (4) WAS MORE EFFECTIVE IN INCREASING THE
 COERCIVE FORCE AND MAX. MAGNETIC ENERGY BY 25-30PERCENT; HOWEVER, WITH 2
 ALLOYS (CONTG. CO 24 AND 35PERCENT) THE MAGNETIC ENERGY AND RESIDUAL
 INDUCTION DECREASED BY 20-5PERCENT, (WHICH IS EXPLAINED BY THE
 DISINTEGRATION OF SINGLE DOMAIN STRUCTURE AND ANISOTROPY). THE FAVORABLE
 ACTION OF ULTRASOUND ON THE OTHER ALLOYS IS EXPLAINED BY THE CYCLIC
 DEFORMATION OF CRYST. LATTICE, WHICH FACILITATES DIFFUSION; WHILE
 ACCELERATING THE FORMATION OF SUBMICROSCOPIC PHASES FROM THE SOLID
 SOLN., THE ULTRASOUND HAD NO EFFECT ON THE COAGULATION RATE.

UNCLASSIFIED

1/2   040   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--MEASUREMENT OF ELECTRICAL RESISTANCE IN ORDER TO ESTIMATE THE
   PLASTIC DEFORMATION OF METALS UNDER EXTERNAL FRICTION -U-
AUTHOR-(02)-KOSTETSKY, B.I., SHULGA, O.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 108-109

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--ELECTRIC CONDUCTIVITY MEASUREMENT, PLASTIC DEFORMATION, METAL
   FRICTION, CRYSTAL LATTICE STRUCTURE, ALUMINUM, MAGNESIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1682   STEP NO--UR/0369/70/006/001/0108/0109

CIRC ACCESSION NO--AP0129052
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0129052
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHANGES TAKING PLACE IN THE
ELECTRICAL RESISTANCE OF VARIOUS METALS, AL AND MG IN PARTICULAR, ON
SUBJECTION TO EXTERNAL FRICTION WERE STUDIED WITH A VIEW TO USING SUCH
MEASUREMENTS AS AN INDICATION OF THE DEGREE OF PLASTIC DEFORMATION
(STRAIN) CAUSED BY FRICTIONAL PROCESSES. TESTS REVEALED A LINEAR
RELATIONSHIP BETWEEN THE RELATIVE ELECTRICAL RESISTANCE AND THE LENGTH
OF THE FRICTION PATH, THE EXTENT OF THE CHANGE IN RESISTANCE DEPENDING
ON THE CRYSTAL STRUCTURE OF THE MATERIAL. IN GENERAL THIS METHOD PROVED
QUANTITATIVELY SATISFACTORY FOR THE PURPOSE ENVISAGED.

UNCLASSIFIED

USSR

UDC 534.322.3+534.83

LEONT'YEV, G. A., SHUL'GA, P. M.

"Localization of Sources of Industrial Noise by the Correlation Method"

Translation: An example of the application of the correlation method to localize
sources of industrial noise and to determine the portion of sound energy produced
at a given point by each noise source is described. By measuring the mutual cor-
relation coefficient the basic sources of noise were determined at one of the
shops of the Volgograd Oxygen Plant where successive switching off of machines
was impossible without disrupting the production process. The IDK-4 integral-dif-
ferential correlator was used for the measurements (a development of the special
design office of the Institute of Radioengineering and Electronics of the Academy
of Sciences USSR); this was a special-purpose digital computer operating in real
time. G. P. Karaushev.

1/1

USSR

SHUL'GA, S. I., and CHUYGUK, V. A., Kiev Technological Institute of
the Food Industry, Kiev, Ministry of Higher and Secondary Specialized
Education RSFSR; Kiev State University imeni T. G. Slenchenko, Kiev,
Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Thiazolo(3,2-a)pyrimidinium Salts. Synthesis From Salts of α-
Aminothiazoles and Symmetric β-Diketones"

Abstract: The authors used a previously suggested method of pre-
paring condensed pyrimidinium salts for the synthesis of thiazolo-
pyrimidinium salts by the condensation of simple salts of α-amino-
thiazoles with β-diketones. Simple salts (halogen derivatives and
particularly perchlorates) of α-aminothiazoles, -benzothiazoles,
-naptho(2,1-d)thiazolo and -2-thiazoline were used. The β-diketones
used were acetylacetone, methyl- and ethylacetylacetones and diben-
zoylmethane.

1/1

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USSR

POPOV, A. A., LAVRIV, Ya. M., STARCHIK, V. P., CHEKAYLO, M. A.,
SHUL'GA, V. A., SHCHITKO, V. N., YANENKO, V. M.

UDC: 8.74

"Automated System for Statistical Analysis of Medical and Bio-
logical Data"

Translation: The paper discusses the functioning of an auto-
mated system for analysis of medical and biological data.
Requirements for the software system are given. Statistical
methods and criteria are presented which are realized in the
system.

1/1

USSR

SHUL'GA, V. A.   UDC: 8.74

"Some Algorithms for Search for Variants of the Clinical Pattern of Illnesses"

Kibernet. i vychisl. tekhn. Resp. mezhved. sb. (Cybernetics and Computer Technology. Republic Interdepartmental Collection), 1972, vyp. 14, pp 86-92 (from RZh-Kibernetika, No 5, May 73, abstract No 5V818 by the author)

Translation: An algorithm is considered for constructing the clinical pattern of illnesses. The algorithm consists of an algorithm for forming the space of symptoms, and an algorithm for constructing the minimum procedures for patient examination. The algorithm is used to solve the problem of describing variants of the clinical pattern of six forms of myocardial infarct on the "Minsk-22" computer.

1/1

SHUL'GA, V. A.

medicine

AN INFORMATION MODEL OF THE THERAPEUTIC PROCESS

UDC 002.513.5:61

At the present time medical data systems are being developed in the USSR and abroad for the purpose of increasing the effectiveness of medical institutions. In the course of this, resources are focused on the resolution of both administrative-management tasks and tasks connected with increasing the efficacy of therapeutic measures, with improvement of the utilization of beds, expensive, specialized medical equipment, etc. (3), (5), (8). In this relation the construction of an information model of the therapeutic process and subsequent construction of an automated system of administering the therapeutic process is an important task which must be resolved jointly by medical and systems technology personnel.

Component Parts of the Therapeutic Process

The therapeutic process is a combination of recognition and control actions, i.e. a combination of diagnosis and subsequent prognosis of the course and outcome of a disease, and designation of therapy. Diagnosis, as a process, consists of perception of the essence of a reflection of objectively existing states of the living organism in the consciousness of man (physician-diagnostician). Prognosis in the model of the therapeutic process determines the degree enabling assessment of the risk of a concrete control (therapeutic) action. The therapeutic usually is considered as consisting of two stages, A and B (1), (2), (4).

The first stage, A, begins with examination of the patient (study of his status praesens, i.e. study of the symptom group, ECG, etc.), and ends with the establishment of the nosological form of the disease. This stage consists of the following two phases:

(1) collection and primary processing of data on the status of health of the patient;

(2) determining the disease diagnosis on the basis of analysis of the gathered information (analysis of objective and subjective disease

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[I - USSR - C]

symptoms, status and assessment of symptoms in relation to degree of complete-
ness, reliability, etc.); this phase includes:

(a)   establishing the morphological essence of the disease of the
given patient;

(b)   determination or diagnosis of the functional status of in-
dividual organs and systems of the disease resulting from the pathological
process in them or its indirect effects;

(c)   determining the diagnosis of the disease.

In this phase the nosological form of the disease is determined on
the basis of the entire aggregate of symptoms collected in the examination
of the patient (anamnestic and physical, objective and subjective) and on
the basis of the morphological and functional status of the patient. In
this phase, traits appear in the clinical picture presented by the patient
which are more or less common to all patients suffering from the same
disease.

The average statistical, or any other degree of diagnosis of a disease
inherent to this stage is partially transformed into a "diagnosis of the
patient" (according to S. P. Botkin) in the next phase, in Stage B.

The second stage, Stage B, begins with establishment of the "diagnosis
of the patient," on the basis of which prognosis of the course and the out-
come of the disease are made, and optimal therapeutic action is indicated.
This stage consists of the following phases:

1.   Establishing specific manifestations and peculiarities of the
course of the given disease. In a particular patient this takes place in
the process of determining the diagnosis of the patient, which precedes
prognosis of the course and outcome of the disease.

2.   Prognosis of the course and outcome of the disease. Prognosis
of the disease, made on the basis of diagnosis of the patient, with con-
sideration of various therapeutic measures, must have a concrete, objective
character, while at the same time being relative to both the concept of
strict individualization, and the concept of the dynamics of time. Choice
of the correct prognosis is extremely important to development of the opti-
mal plan of therapeutic measures in relation to the patient.

3.   Working out a concrete strategy of therapy. In working out a
correct, optimal therapy, its efficacy, toxicity, cost, etc. must be taken
into account.

4.   Assessment and correction of control measures. The therapeutic
process may vary according to duration, and thus may be repeated various
times, such as from two minimal treatments to many scores of treatments, as

- 2 -

Abstract: The dynamic method, based on the use of oscillators
with frequency modulation, is becoming more widely used in pre-
ference to statistical methods for measuring UHF resonator char-
acteristics because it involves fewer difficulties. However,
since this method too is complex and has the drawback of requir-
ing several pieces of equipment, the authors propose a device for
making these measurements using standard instruments. It com-
prises a klystron oscillator which is both frequency and amplitude
modulated by a square-pulse oscillator, the resulting signal going
to the resonator under measurement through a measuring line. A
second output of the line goes to an oscillograph whose sweep cir-
cuit is controlled by the same square-pulse oscillator noted above.
The authors used this method for determining the characteristics
of high-Q resonators in the three-centimeter wavelength range with
standard components. They assert that the method is also conveni-
ent for finding the maximum Q in the selection of resonators.

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USSR

BONDARENKO, B. N., SHUL'GA, V. G., KONOVALOV, V. I., MILYUTIN, S. I.

UDC 621.385.63

"Experimental Study of a Model of a Two-Beam Traveling Wave Tube (EVLBV)"

Abstract: An experimental study was made of a model of the EVLBV two-beam
traveling wave tube, and the results are compared with the theoretical calcu-
lations. In the nonlinear mode the velocity difference has the defining effect
for achieving high efficiency of the two-beam traveling wave tube and it has
optimal significance. The two-beam traveling wave tube is an efficient centi-
meter-band electronic device capable of insuring a high amplification factor
of 40 decibels with a sufficiently high value of the electron economy 20%.
The achieved electron economy is not the design limit. Increasing the space-
charge parameter and the input signal level offers further possibilities for
increasing the defined efficiency. The developed electron-optical system in-
sures sufficiently good mixing of the beams for the occurrence of effective
electron wave interaction. The two-beam traveling wave tube has good possi-
bilities for wide band amplification of the input signals, and by selecting
special operating conditions it is possible to reach an amplified frequency

1/2

USSR

BONDARENKO, B. N., et al., Izvestiya vuzov SSR, Radioelektronika, Vol XV, No 8, 1972, pp 1033-1036

band of more than two octaves with an amplification nonuniformity no worse than 5 decibels. The experimental results agree well with the theoretical calculations, and the theoretical results can be recommended for use when developing efficient wide-band microwave amplifiers.

2/2

SHUL'GA, V. G., BONDARENKO, B. N.

"Two-Beam Traveling Wave Tube (EVLBV) in the Large Input Signal Mode. Parameter Effect"

Abstract: A study was made of the parameter effect on the output characteristics of a two-beam traveling wave tube in the nonlinear mode. The nonlinear equations of the two-beam traveling wave tube were formulated previously [V. G. Shul'ga, et al., Nelineynaya teoriya dvukhluchevoy LBV, Khar'kov State University, Khar'kov, Radiotekhnika, No 14, 1969]. Since these equations could not be solved analytically, the large input signal modes were analyzed on the basis of a numerical solution of the equations on the M-220 computer using the Runge-Kutta method. Among the parameters defining the nonlinear mode, the velocity difference h is new by comparison with the ordinary traveling wave tube. The velocity difference parameter has a sharply expressed resonance nature. With an optimal set of the h parameter, the total efficiency of the two-beam traveling wave tube increases noticeably. The dependence of the electron economy η and the amplification factor G for a series of successive values of the asynchrony parameter b is considered. There is a clear maximum of the electron economy in the vicinity of the parameter b $\approx$ 0.5, the amplification factor

1/3

USSR

SHUL'GA, V. G., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8,
1972, pp 1027-1032

remains relatively small G = 35 decibels and has a tendency to increase mono-
tonically with the asynchrony parameter b. For small values of the flow charge
parameter q the effect of the parameter b is similar to its effect in the
nonlinear mode of the traveling wave tube. An increase in the parameter q in-
creases the efficiency of the device as a whole. However, beginning with q =
= 1.5, a further increase in the space charge parameter is not accompanied by
a noise increase in the field amplitude. The amplification parameter C of the
two-beam traveling wave tube has the same effect on the economy as in the
ordinary traveling wave tube. The input signal level parameter F_0 has a "thresh-
old" effect which is absent in nonlinear processes in the ordinary traveling
wave tube.

The velocity difference between the electron beams under defined condi-
tions improves the characteristics of the two-beam traveling wave tube in the
large input signal mode. The theoretical value of the electron economy in-
creases(to 75% without losses), the saturation length decreases (it is cut in
half by comparison with the ordinary traveling wave tube), the band of ampli-
fied frequencies is broadened (the band defined by the asynchrony parameter
b). The nature of the effect of the parameters on the output characteristics
in the investigated modes approaches the effect of the parameters in the

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nonlinear mode of the ordinary traveling wave tube. This is explained by the relatively small magnitude of the space charge parameter. An increase in the optimal value of the nonuniformity parameter is observed by comparison with the linear mode. This is connected with the high effect of the space charge in the nonlinear mode. There is a clear trend toward an increase in the electron economy with an increase in the space charge parameter and the input signal level. These results agree with the results of the linear theory of a two-beam traveling wave tube and the nonlinear theory of the traveling wave tube. A high value of the electron economy and significant reduction in the saturation space length are possible only for parameter ratios where the existence of an "summing" electron wave tube and traveling wave tube interaction is possible. On the whole, the result of the numerical solution of the equations of the two-beam traveling wave tube in the nonlinear mode indicates that well-founded prerequisites exist for building an efficient microwave amplifier based on the combination of the traveling wave tube and the electron wave tube.

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USSR

UDC 621.385.6

SHUL'GA, V.G., BONDARENKO, B.N., BIKHSHTEYN, V.I.

"Depression Factor Of Heterovelocity Electron Flows"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific-Technical Collection), 1970, Issue 14, pp 19-23 (from RZh--Elektronika i yeye primeneniya, No 4, April 1971, Abstract No 4A25)

Translation: A computation is presented of the depression factor [koeffitsiyent depressii] for heterovelocity electron beams. In the case under consideration the depression factor forms a matrix. The problem was solved for an arbitrary relative spatial distribution of coaxial beams. The relationships obtained are illustrated by numerical computations which are presented in the form of charts. 2 ref. Summary.

1/1

USSR

SHUL'GA, V.G., BONDARENKO, B.N.

"Nonlinear Theory Of Double-Beam TWT. Basic Equations"

Translation: The nonlinear regime of a double-beam traveling-wave tube (so-called electron-wave TWT) is considered. A system of integro-differential equations is formed for an electron-wave TWT in a saturation regime. Linearization of the equations was conducted, which showed that in a passage to the limit the system of equations reduces to an algebraic equation of an electron-wave TWT in the linear regime considered earlier. The necessary calculations are performed for the space charge forces, and equations are reduced to a form suitable for solution on a digital computer. Summary.

1/1

USSR

KONOVALOV, V. Ye., SHUL'GA, V. G.

"Theorem Concerning Kinetic Power in a Two-Beam TWT"

Translation: On the basis of a theorem of kinetic power, an analysis is conducted of growing waves in a two-beam traveling-wave tube. Criteria are obtained for growing waves which make it possible to develop a formal solution and to clarify the physical content of solutions which satisfy the law of the conservation of energy. Applications are illustrated of the criteria for growing waves in a two-beam TWT with concrete values of the parameters of electron streams and a delay system. 6 ref. Summary.

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USSR

UDC 612.822.3+612.84

KOGAN, A. V., TKACHENKO, N. N., TUMASOVA, N. K. and SHUL'GA, Ye. L.,
Scientific Research Institute of Neurocybernetics, Rostov-na-Don State
University

"On the Interconnection of Neuronal Background Activity in the Visual and
Somatosensory Cortical Areas"

Abstract: The correlation coefficients for the background impulse activity
of 159 pairs of cat neurons, one in the visual region and the other in the
somatosensory region, were analyzed. In 25 to 30% of the cases significant
(greater than 0.4) coefficients were found for a 5 sec recording interval.
However for a 1 min interval the coefficients were not statistically signif-
icant. A group of five cats with the somatosensory region partially isolated
from subcortical structures also showed significant coefficients for 5 sec
intervals. These results are said to suggest significant episodic correla-
tion and the importance of intracortical pathways. The 1 min results are
considered due to oscillation leveling.
1/1

Acc. Nr: *AP0047201*   Ref. Code: *UR0504*

ELECTROLYTES AND HYPERTENSION

Yu. D. Shulga, N. E. Deyneko

Summary

The authors investigated the main parameters of electrolyte metabolism: plasma concentration of sodium and potassium, their content in erythrocytes, value of the filtration charge, reabsorbtion and diurnal secretion of sodium and potassium. These indices were determined in the conditions of the salt restriction, prescription of symptolytic substances and aldosterone antagonists. In parallel with it the electric activity of the heart was studied by means of electrocardiography and vectorcardiography. No significant difference in the sodium content of patients with hypertensive disease and symptomatic hypertensions were revealed. There was seen a tendency to hypersodiemia. The electrolyte metabolic function of the kidneys was characterized by intensive filtration and sodium reabsorbtion. Sodium reabsorbtion dropped under the influence of symatholytics and aldakton. A tendency to retension of sodium and loss of potassium in the myocardium was characterized vectorcardiographically by diminution of a total area of the QRS loops.

REEL/FRAME

19790701

USSR   UDC 539.5

DRITS, M. Ye., ROKHLIN, L. L., SHEREDIN, V. V., SHULVGA, Yu. N., Moscow

"Influence of Certain Factors on Dissipation of Energy During Elastic Oscilla-
tions in Magnesium Alloys"

Abstract: This work presents the result of a study of the damping ability
of one class of structural materials broadly used in technology -- magnesium
alloys. The interest in the damping ability of magnesium alloys results from
the fact that magnesium and certain of its alloys are characterized by high
attenuation of elastic oscillations. The damping ability of alloys was de-
termined using a torsional pendulum with solid circular specimens with a gauge
section diameter of 6 mm and a length of 50 mm with oscillations with an
initial amplitude of $3.3 \cdot 10^{-4}$ at the surface of the specimen. The damping
ability was characterized by the logarithmic oscillation decrement. The
studies resulted in production of a new alloy with good damping qualities
and increased strength.

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UDC 620.178.311.6:669.721

USSR

DRITS, M. Ye., ROKHLIN, L. L., SHEREDIN, V. V., and SHUL'GA, Yu. N., Institute of Metallurgy imeni A. A. Baykov

"Magnesium Alloys With High Damping Capacity"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 48-51

Abstract: This study discusses the basic properties of alloys of the system Mg-Zr, considers the effect of alloying and mechanical and heat treatment on their damping ability, and compares their properties with those of other alloys. The data indicate that magnesium has the same damping ability as tin, lead, and zinc, and considerably surpasses that of aluminum, copper, titanium, and molybdenum. The Mg-Zr alloy has the same damping ability as pure magnesium. The mechanical properties and damping decrement of Mg-Zr alloys depend very little on the casting conditions. The annealing of cast Mg-Zr alloys has no effect on their mechanical properties. The damping decrement during annealing of cast Mg-Zr alloys remains stable. The pressure treatment of Mg-Zr alloys reduces their damping ability. Reduction in the damping decrement during introduction of strengthening additives into magnesium or Mg-Zr alloys can be explained by the fact that they retard the process of twinning. The same is true of increasing the damping decrement of deformed alloys during recrystallization and grain growth. 1/1

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USSR

KRYKOV, YE. I., BORISOV, A. K., and SHUL'GIN, B. V.

"Luminescent Compound on the Basis of Elements of the III Group"

Ural'sk. politekhn. in-t (Ural Polytechnical Institute)

Translation: A luminescence-producing compound which includes elements of the III group is patented. For example, the Y compound, with the activator Eu. In order to increase the luminescence brightness, oxides or chlorides of titanium and niobium are added to it. Oxides of Y and Eu, and oxides or chlorides of Ti and Nb are added in a stechiometric ratio which corresponds to the artificial euxenite $Y_{1-x}Eu_xTiNbO_6$ where $x = 0.01-0.65$. For example a mixture containing (in g) Nb_2O_5 3.5314, $2TiO_2$ 2.1228, Y_2O_3 1.616, and Eu_2O_3 1.384 are ground in alcohol for 40 min, dried, ignited at 1050°C for 2 hr, ground again in ethalon for 30 min and pressed into tablets. Tablets are roasted at 1200°C for 10 hr in air, cooled in the turned off oven, and subjected to the final roasting at 1250°C for 1 hr. The obtained product corresponds to $Y_{0.5}Eu_{0.5}TiNbO_6$ with its

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USSR

KRYKOV, YE. I., et al., Author's Certificate No 323429,

stechiometry and has the euxenite structure. The product is nonhygroscopic, can not be dissolved in HCl, H_2SO_4, HNO_3, alkali, thermostable up to 1250°C, and produces bright-red luminescence.

2/2

USSR   UDC 661.143(088.8)

BORISOV, A. K., KRYLOV, YE. I., and SHUL'GIN, B. V., Ural Polytechnic Institute

"Luminescent Substance"

USSR Authors' Certificate No 321893. Cl. H 01 s 3/16, filed 19 May 70, pub-
lished 31 Jan 72 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N132P by
N. Sh.)

Translation: To increase the chemical and thermal stability of a luminescent
material and improve its chromatic characteristics, niobium and titanium in
the form of oxides or chlorides are taken and their mixture with europium is
activated until stoichiometry of the compound $EuTiNbO_5$ is attained. The com-
position contains (in %): 44.8-45.2 Eu_2O_3, 34.2-35 Nb_2O_5 and 19.8-20.6 TiO_2.
This substance is chemically stable, insoluble in alkalis and many acids, and
also thermostable up to 1360°, which significantly widens the sphere of its
possible employment.

1/1

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USSR

SHABANOV-KUSHNARENKO, YU. P., SHUL'GIN, I. V. and LOPATCHENKO, B. K.

"Introduction of Metrics in a Field of Vision"

Translation: The regularities of conversion of a physical space into a subjective field of vision with monocular perception are mathematically described. The introduction of a linear normalized space to the field by an axiomatic method allowed proof of the existence of mapping Φ, converting the initial form of the field of vision to a normal form and providing Euclidean metrics within it. Diagrams characterizing the form of transform Φ^{-1} are produced.

Author's view

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USSR

SHUL'GIN, I. V.

"Study of the Metric Properties of the Field of Vision"

Probl. Bioniki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 9, pp 105-115 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V729).

Translation: The information processes in the human visual system involved in monocular perception, related to conversion of the physical space into the subjective field of vision are mathematically described. Introduction of metrics to the field of vision allows the class of sets of visual sensation to be limited. 21 biblio. refs.

1/1

USSR

SHUL'GIN, I. V., LOPATCHENKO, B. K., PIL'SHCHIKOV, B. V.

"Mathematical Modeling of Monocular Visual Perception"

Translation: A mathematical description is presented of a system for con-version of information encompassing a rather broad class of problems of mathematical description of cerebral functions. The introduction of the mathematical concepts is studied as applicable to the problem of conversion of the visual space into the field of vision of man with monocular perception.

1/1

USSR

.UDC: 621.391.19

PUTYATIN, Ye. P., SHUL'GIN, I. V., YURCHENKO, V. P., ABRAMOV, O. M., Khar'-kov Institute of Radioelectronics

"A Device for Normalizing the Size of Flat Images for Pattern Recognition Systems"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332477, Division G, filed 13 Aug 70, published 14 Mar 72, p 200

Translation: This Author's Certificate introduces: 1. A device for nor-malizing the size of flat images for pattern recognition devices. The device contains a rotating platform which carries a television tube with deflecting coils, a photoelectric module for computing the coordinates of the center of gravity of the image, photographic objective lenses, and photocells with slit masks. The device also contains an electric drive unit for rotating the platform, and also line and frame scanning gener-ators. The input of the electric drive unit is connected to the outputs of the photocells, and the outputs of the drive are connected through a delay line to the controlling input of a video amplifier which is con-
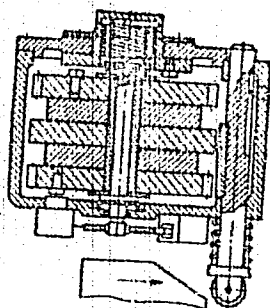
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USSR
PUTYATIN, Ye. P. et al., USSR Author's Certificate No 332477

nected between the output of the television tube and a video monitoring
and a computing module. As a distinguishing feature of the patent, in
order to reduce the requirements for displacements and changes of scale
of the images to be transformed, the device contains multipliers whose
first inputs are connected to the outputs of the photoelectric module for
computing the center of gravity of the image, while the second inputs are
connected to the outputs of the frame and line scanning generators re-
spectively. The outputs of the multipliers are connected to the corre-
sponding coils. 2. A modification of this device distinguished by the
fact that the electric drive unit for platform rotation contains two
channels comprised of an inhibit circuit, a power amplifier, and an ac-
tuating motor connected in series. One input of the inhibit circuit is
connected to the output of the corresponding photocell, and the other
input of the inhibit circuit is connected to the output of the reference
voltage source. The second output of each inhibit circuit is connected
to the corresponding output of the electric drive unit.

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USSR

PUTYATIN, Ye. P. et al., USSR Author's Certificate № 332477

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USSR

UDC: 8.74

SHABANOV-KUSHNARENKO, Yu. P., SHUL'GIN, I. V., PUTYATIN, Ye. P., LOPAT-
CHENKO, B. K.

"Mathematical Modeling of Human Classification of Certain Classes of
Visual Patterns"

V sb. Upr. i inform. protsessy v zhivoy prirode (Control and Information
Processes in Animate Nature--collection of works), Moscow, "Nauka", 1971,
pp 106-111 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V596)

Translation: The authors consider the following problem of interpretation
of formulas which describe conversion of input signals to output signals
in the organ of vision. Let there be a certain signal converter in the form
of block 1. Signals x_1, x_2,... may be sent to the input of block 1. Sig-
nals y_1, y_2,... correspondingly appear at the output of block 1 in re-
sponse to these signals. All possible signals x_1, x_2,... to which block
1 reacts form some set X. All possible responses of the converter form
the set Y. The operator F puts the elements y of set Y into correspondence
with the elements x of set X. This correspondence may be expressed by the

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PUTYATIN, Ye. P., BARANNIK, V. V., PUTYATINA, G. M., SHUL'GIN, I. V.

"Statistical Aspects of the Recognition of Color Shadings"

Translation: Statistical problems of recognition of color are studied, an algorithm of recognition is suggested, considering the probable thresholds of vision in three channels. The design of a device for recognition of color shadings is discussed.

1/1

USSR

SHUL'GIN, V. A.

"Determination of Servicing Characteristics in Acyclical Systems"

Tr. Leningr. In-t. Aviats. Priborostr. [Works of the Leningrad Institute of Aviation Instrument Building], 1972, No 74, pp 106-108 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V73 by the author).

Translation: One-channel and multichannel single-line acyclical measurement systems with arbitrary memory volume are studied. Based on the criterion used to estimate the quality of operation of such systems (probability of deviation), servicing characteristics of random flows of messages formed as a result of discretization of continuous measured parameters are produced.

- 6 -

USSR

AZAREVICH, G. M., BERNSHTEYN, M. L., FRIDMAN, V. B., and SHUL'GIN, V. V.

"Thermomechanical Hardening of 4Khl0S2M Steel"

Abstract: A study has been made of the effect of various systems and parameters of thermomechanical treatment on the hardening of 4Khl0S2M steel designed for valves of tractor engines. It was found that upon high-temperature thermomechanical surface treatment (HTTST) of the working bevel of the valve, its hardness in the high-tempered state increases as compared to ordinary quenching and the same tempering. The obtained results make it possible to uniquely select optimum specifications for HTTST, including surface rolling using rolls 15 mm in diameter with a force of 250 - 400 kg per roll for 10-15 seconds, the degree of strain being about 40%. The recommended degree of strain with HTTST is consistent with the data in the literature. The suggested specifications insure maximum preservation of the hardness of 4Khl0S2M steel on tempering and high hardness immediately after treatment.

1/1

USSR

UDC 621.355.8.035.2

SHUL'GINA, G. A.

"Improving the Technology of Ceramal Electrodes of Nickel-Cadmium Storage Batteries"

Tr. Novocherkas. Politekhn. in-ta (Works of the Novocherkassk Polytechnical Institute), 1972, 266, pp 96-99 (from RZh-Khimiya, No 18 Sep 72, Abstract No 18L177)

Translation: A study of the effect which treatment of the ceramal bases of nickel-cadmium storage battery terminals in an alkali solution after saturation in solutions of active metals has on the content of NO_3^- and Cl^- in the electrodes shows that in order to minimize the concentration of these impurities the process of treatment should be started in a solution having a temperature of $40^\circ C$ or less, with subsequent increase of the temperature of the solution to achieve a greater degree of conversion of salts of the active metal to hydroxides. For better removal of Cl^- from the negative electrodes, formation should be limited to a single charge-discharge cycle. V. S. Levinson.

1/1

USSR

UDC 612.822.3+612.825.54

SHUL'GINA, G. I., OBLACHEVA, N. K., and LYAPKUSOVA, A. V., Institute of Higher Nervous Activity and Neurophysiology, Academy of Sciences USSR

"Interaction of Specific and Nonspecific Afferent Impulses in the Rabbit Visual Cortex"

Abstract: Spike activity and slow evoked potential of the surface and deep layers of the visual cortex were studied in alert, unrestrained rabbits following separate and combined action of light flashes and electrical stimulation of an extremity and in response to direct electrical stimulation of the lateral geniculate body (LGB) and reticular formation (RF). In some cases, nonspecific stimulation caused an unequal weakening of the slow waves in both the surface and deep layers of the cortex evoked by specific stimulation. Stimulation of the LGB elicited a deep negative wave that preceded a slow, deep positive oscillation which was not inverted on the surface of the cortex. An oscillation of similar parameters was also recorded in the deep cortical layers following stimulation of the RF. The combined action of the LGB and RF intensified this oscillation more than did stimulation of the LGB alone. The deep negative oscillation in response to stimulation of the RF reflected activation of 20%

1/2

USSR

SHUL'GINA, G. I., et al., Zhurnal Vysshey Nervnoy Deyatel'nosti, No 5, 1972,
pp 1,046-1,054

of the neurons recorded. It apparently helped to weaken the recurrent inhibi-
tion arising in the visual cortex in response to the specific stimulus.

2/2

USSR

UDC: 621.382.3:621.372.061

PARATOV, G. M., LITKENS, Ye. M., and SHUL'GINA, G. S.

"Using the Electronic Computer to Model the Relation Between Qualitative Indices and Structural Parameters of a Transistor"

Kiev, Izvestiya VUZov SSSR--Radioelektronika, No. 6, 1970, pp 701-709

Abstract: This article considers the application of a mathematical model on an electronic computer for analyzing a planar diffusion transistor typically used as the active component in an integrated circuit. The computation of the qualitative indices of such a transistor as a function of its structural parameters, the impurity distribution in its structure, and the physical characteristics of the semiconductor, uses the description of the migration process and the recombination of carriers, as well as many other factors; consequently, a general algorithm for computing its static and dynamic qualitative indices is extremely difficult and must be worked out on an electronic computer. The model worked out by the author is given in the form of a block diagram. The mathematical model of the transistor contains the electrical qualitative indices of the device which are used as output parameters while the structural and physical indices of the integrated circuit are used as input parameters. The programs of the mathematical model were made up of the "Engineer" autocode input language, and the calculations were done on the Minsk-22 computer.
1/1

1/2   011

TITLE--CATALYTIC SYNTHESIS OF CARBOHYDRATES FROM FORMALDEHYDE -U-

UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR-(04)-KRYLOV, O.V., SINYAK, YU. YE., USPENSKAYA, V.A., SHULGINA, I.L.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL. 4, JAN. FEB. 1970, P. 6-11

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CARBOHYDRATE, CHEMICAL SYNTHESIS, FORMALDEHYDE, CATALYTIC ORGANIC SYNTHESIS, CHROMATOGRAPHY, CALCIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0067

STEP NO--UR/0453/70/004/000/0006/0011

CIRC ACCESSION NO--AP0119063

UNCLASSIFIED

CIRC ACCESSION NO--AP0119063   UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE EFFECTS OF THE
TEMPERATURE, SOLVENT, AND FORMALDEHYDE AND CATALYST CONCENTRATION ON THE
YIELD AND COMPOSITION OF MONOSACCHARIDES PRODUCED BY FORMALDEHYDE
CONDENSATION. THE EXISTENCE OF A DIRECT RELATION BETWEEN THE RATES OF
THIS REACTION AND THE CONCENTRATIONS OF FORMALDEHYDE AND CATALYST COULD
NOT BE ESTABLISHED. A HIGHER YIELD OF MONOSACCHARIDES WAS OBTAINED IN
AN ALCOHOL MEDIUM. CHROMATOGRAPHY INDICATES THAT MOST OF THE PRODUCTS
ARE ALDOPENTOSES AND ALDOHEXOSES. THE EQUATION OF AUTOCATALYSIS
DESCRIBES SATISFACTORILY THE KINETICS OF THIS REACTION. THE ACTIVATION
ENERGY OF THE REACTION IN THE PRESENCE OF CALCIUM HYDROXIDE IS 11.3
KCAL,MOL.

PROCESSING DATE--30OCT70

UNCLASSIFIED

USSR

TKALACH, O. B., SHUL'GINA, L. A.

UDC: 8.74

"A Program for Solving Net-Point Problems With Integer Resources"

Leningrad, Perspektivy razvitiya i effektivn. elektroenergetich. mashin i sistem--sbornik (Prospects for Development and Effectiveness of Electric Power Machines and Systems--collection of works), "Nauka", 1973, pp 144-150 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V659 by the authors)

Translation: The paper describes a program for solving net-point problems with regard to integer resources of the "executive" type compiled in "Inzhener" autocode for the "Minsk-22" computer. Questions of cutting down computation time are briefly considered. Examples are given of time expenditures for solving these net-point problems.

1/1

1/2   007   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--ON THE VOLUME AND POSITION OF THE CALLOWIAN STAGE OF ARCTIC REGION
-U-

AUTHOR--SAKS, V.N., MELEDINA, S.V., MESEZHNIKOV, M.S., SHULGINA, N.I.

COUNTRY OF INFO--USSR, ARCTIC OCEAN

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 1 (121) PP 31-38

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--POLAR AREA, ARCTIC GEOLOGY, GEOLOGIC FORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1310   STEP NO--UR/0210/70/000/001/0031/0038

CIRC ACCESSION NO--AP0103192
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0103192

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REASONABILITY OF THE CALLOWIAN STAGE RELATION TO THE UPPER SERIES OF THE YURASSIC IS SHOWN BASED UPON THE ARCTIC REGION DATA. IN THE CALLOWIAN OF THE ARCTIC ZOOGEOGRAPHICAL PROVINCE SOME ZONES ARE DISTINGUISHED: ARCTICOCERAS KOCHI, CADOCERAS ELATMAE (LOWER SUBSTAGE), CADOCERAS MILASCHEVICI (MIDDLE SUBSTAGE), LONGAEVICERAS KEYSERLING (UPPER SUBSTAGE).

USSR

SHUL'GINOV, B. S., Kiev

"Influence of Small Elastic-Plastic Cyclical Deformation on Dissipation of Energy in Metals"

Abstract: The problem of the dissipation of energy during vibration is studied for the area in which there is an amplitude dependence of the oscillation decrement. Metals in the initial annealed state show a sharp increase in internal friction with cyclical stresses exceeding the critical stress. With subsequent cyclical loading, the critical stress increases for cyclically hardening materials, decreases for cyclically softening materials.

1/1

Acc. Nr:
AP0046683

A70-24244 #   Some remarks on the relation between energy
dissipation and fatigue strength in preliminarily strained materials
(Nekotorye zamechaniia o sviazi rasseianiia energii s ustalostnoi
prochnost'iu v predvaritel'no deformirovannykh materialakh). B. S.
Shul'gina (Akademiia Nauk Ukrainskoi SSR, Institut Problem
Prochnosti, Kiev, Ukrainian SSR) and V. V. Khil'chevskii (Kievskii
Politekhnicheskii Institut, Kiev, Ukrainian SSR). Problemy
Prochnosti, vol. 1, Dec. 1969, p. 60-62. In Russian.
    Discussion of the relation between the energy dissipation during
vibrations and the fatigue strength for several metals and alloys. It is
found that the logarithmic decrement and the fatigue limit behave
oppositely with respect to the effect of the degree of preliminary
strain.

Z.W.

REEL/FRAME
19781999

18

USSR

UDC 615.365.015.45:612.453.018.015.36

PETRUN', N. M., LITVINCHUK, N. K., and SHUL'GINOVA, Z. I., Kiev Institute of Kidney
and Urinary Tract Diseases, and Kiev Institute of Endocrinology and Metabolism

"Comparative Study of the Effect of Large Doses of Antiadrenal cortex, Antimito-
chondrial, and Antimicrosomal Cytoxic Sera on the Biosynthesis of Corticosteroids"

Abstract: It was found that administration of antiadrenal cortex serum in large
doses had an inhibitory effect on the biosynthesis of corticosteroids, when the
serum was used as the precursor of such steroid hormones as progesterone or
pregnenolone. A large dose of antimitochondrial serum (with progesterone as pre-
cursor), had an inhibitory effect on the 21-hydroxylation of progesterone (the
formation of 11-desoxycorticosterone and corticosterone was reduced by 37 and 49%
respectively). However, the amount of 17-hydroxycorticosteroids--11-desoxycorti-
sole, hydrocortisone, and cortisone -- was not changed. Antimicrosomal serum had
no effect on the biosynthesis of corticosteroids from progesterone. In experi-
ments with pregnenolone, a substantial drop in the biosynthesis of 17-hydroxy-
corticosteroids was observed. Apparently, anitmicrosomal serum exerts this effect

1/2

USSR

PETRUN', N. M., et al., Patologicheskaya Fiziologiya i Eksperimental'naya
Terapiya, No 3, May/Jun 70, pp 28-31

only on the transformation rate of pregnenolone into its 17-hydroxy derivative.
Since the serum in large doses inhibits 17-hydroxylation of pregnenolone but not
of progesterone, these two hydroxylases apparently are not identical. Sera devel-
oped against particular cellular organisms (mitochondria or microsomes) had a more
selective inhibitory effect on the biosynthesis of corticosteroids than did those
developed against the whole tissue.

2/2

UNCLASSIFIED

TITLE—A COMPARATIVE STUDY OF THE EFFECT OF HIGH DOSES OF   PROCESSING DATE—30OCT70
   ANTICORTICOSUPRARENAL ANTIMITOCHONDRIAL AND ANTIMICROSOMAL CYTOTOXIC
AUTHOR-(03)-PETRUN, N.M., LITVINCHUK, N.K., SHULGINOVA, Z.I.

COUNTRY OF INFO—USSR

SOURCE—PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970,
   VOL 14, NR 3, PP 28-31
DATE PUBLISHED———70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—CORTICOSTEROID, BIOSYNTHESIS, INHIBITION, SELECTIVE DRUG
   EFFECT, MITOCHONDRION

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAME—3001/1929

STEP NO—UR/0396/70/014/003/0028/0031
CIRC ACCESSION NO—AP0127330

UNCLASSIFIED

2/2   023
CIRC ACCESSION NO—AP0127330   UNCLASSIFIED   PROCESSING DATE—30OCT70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A COMPARATIVE (IN VITRO) STUDY WAS
MADE OF THE EFFECT OF HIGH DOSES (30 PER CENT OF THE VOLUME OF THE
INCUBATION MEDIUM OF ANTICORTICOSUPRARENAL, ANTIMITOCHONDRIAL AND
ANTIMICROSOMAL CYTOTOXIC SERA ON BIOSYNTHESIS OF STEROID HORMONES IN THE
ADRENAL CORTEX OF CATTLE. THE TITRE OF THE MENTIONED SERA WAS 1:320.
SERA PRODUCED AGAINST INDIVIDUAL CELLULAR ORGANOIDS (MITOCHONDRIA AND
MICROSOMES) PRODUCED A MORE SELECTIVE INHIBITORY EFFECT ON BIOSYNTHESIS
OF CORTICOSTEROIDS THAN THOSE AGAINST THE WHOLE TISSUE.
FACILITY: KIYEVSKIY INSTITUT ZABOLEVANIYA POCHEK I MOCHEVYVODYASHCHIKH.
     FACILITY: PUTEY KIYEVSKIY INSTITUT ENDOKRINOLOGII I OBMENA
VESHCHESTV.

UNCLASSIFIED

UNCLASSIFIED

TITLE—INTERACTION OF 3CAO.Al SUB2 O SUB3, 4CAO.AL SUB2 O SUB3.FE SUB2 O SUB3, AND 2CAO.SIO SUB2 WITH CHROMIC OXIDE AT 800-1100DEGREES

PROCESSING DATE—09OCT70

AUTHOR-(04)-RYABIN, V.A., VILNYANSKIY, YA.YE., SHULIMOVICH, E.D., AARONSKIND, V.A.

-U-

COUNTRY OF INFO—USSR

SOURCE—ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 440-2

DATE PUBLISHED————70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—CHROMIUM OXIDE, OXIDATION, MOLECULAR INTERACTION, CALCIUM OXIDE, ALUMINUM OXIDE, IRON OXIDE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—1993/0287

STEP NO—UR/0080/70/043/002/0440/0442

CIRC ACCESSION NO—AP0113217

UNCLASSIFIED

2/2   019

UNCLASSIFIED

CIRC ACCESSION NO--AP0113217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRODUCTS OF REACTION IN THE SYSTEMS 3CAO.AL SUB_2 O SUB_3 NEGATIVE (4CAO.AL SUB_2 O SUB_3.FE SUB_2 O SUB_3, 2CAO.SIO SUB_2)-CR SUB_2 O SUB_3 WERE STUDIED AT 800-1100DEGREES IN AN OXIDIZING ATM. AT 800-900DEGREES THE CR SUB_2 O SUB_3 IS TRANSFORMED TO CACRO SUB_4. AT 1100DEGREES THE PRODUCTS ARE A MIXT. OF CA SALTS OF TRIVALENT AND HEXAVALENT CR IF OXION. OCCURS OR CAO.CR SUB_2 O SUB_3 IF NO OXIDN. OCCURS.

FACILITY: ZH. PRIKL. KHIM. LENINGRAD.

PROCESSING DATE--09OCT70

UNCLASSIFIED

USSR

UDC: 621.374.33(088.8)

SHULITSKIY, R. N., TARASOV, V. S., CHEREPKO, A. A.

"An Output Device for a Multichannel Pulse Commutator"

USSR Author's Certificate No 270799, filed 17 Jun 68, published 11 Aug 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G266 P)

Translation: This Author's Certificate introduces an output device for a
multichannel pulse commutator. The device contains channel power pulse
amplifiers with transformer outputs connected to the logic circuit of the
commutator. To increase pulse power in the channels being switched without
raising the output power of the channel amplifiers, each output pulse
transformer contains an additional winding. The leads of the additional
windings of all transformers are connected in series in a ring to form a
summation circuit which concentrates the pulse power of the channel ampli-
fiers in the channel where there is no controlling pulse from the logic
circuit of the commutator appearing at the amplifier output. Rectifiers
are placed in series with the load.

1/1

- 36 -

USSR

SHUL'MAN, A. R., BAZHANOVA, N. P.

"On the Nature of the Effect of a Thin Film of Barium Oxide of Thickness 1.5 of a Monomolecular Layer on the Secondary Electron Emission of Tungsten at Different Energies of the Primary Electrons (1-150 ev)"

Translation: The secondary electron emission of W with thin films of BaO of different thickness in the range of primary electron energies from 1 to 150 ev was studied to explain the role of a thin BaO film on the surface of a metal in secondary electron emission at low energies of the primary electrons. The study showed that the basic role of the monomolecular layer of BaO on the surface of W at $E_p > 8$ ev is that of lowering the work function of W. For $E_p < 8$ ev the yield of secondary electrons from the film itself becomes considerable. 12 references. Authors abstract.

1/1

USSR

CHUL'MAN, A. R., KORABLEV, V. V., MOROZOV, YU. A., KHOMUTINNI-
KOVA, V. A.

"Investigation of the Variation, with Temperature of the Co-
efficients of Secondary Electron Emission and Inelastic Reflec-
tion of Electrons of Germanium Oxide Single Crystals"

Translation: The coefficient of secondary electron emission σ
was investigated in the primary electron energy range U_p 50-2000
ev for SiO_2 single crystals. Samples with the faces (110) or
(001) on the surface were investigated. Both samples showed
a variation with temperature σ close to that described by Dekker
theory. The coefficient of inelastic reflection is independent
of temperature in the range of temperatures studied (from room
to 350° C). Authors abstract.

1/1

TITLE--SECONDARY ELECTRON EMISSION OF MOLYBDENUM SINGLE CRYSTALS -U-

UNCLASSIFIED

PROCESSING DATE--23OCT70

AUTHOR-(03)-SHULMAN, A.R., KORABLEV, V.V., MOROZOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 758-62

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SECONDARY ELECTRON EMISSION, SINGLE CRYSTAL PROPERTY, MOLYBDENUM, CRYSTAL ORIENTATION, ELECTRON ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1967

STEP NO--UR/0181/70/012/003/0758/0762

CIRC ACCESSION NO--AP0105041

UNCLASSIFIED

CIRC ACCESSION NO--AP0105041   UNCLASSIFIED   PROCESSING DATE--23OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. INVESTIGATION WAS CARRIED
OUT OF THE SECONDARY EMISSION CHARACTERISTICS FOR THE (111) AND (102)
FACES OF SINGLE CRYSTAL MO. THE SHAPE OF THE CHARACTERISTICS WHICH
DESCRIBE DEPENDENCES OF THE COEFFS. OF SECONDARY ELECTRON EMISSION AND
INELASTIC REFLECTION ON THE ENERGY OF PRIMARY ELECTRONS AND THE MAX.
VALUES OF THESE COEFFS. ARE DIFFERENT FOR SPECIMENS WITH DIFFERENT
CRYSTALLOGRAPHIC FACES ON THE SURFACE. THE ANGULAR DEPENDENCES OF THE
SECONDARY EMISSION CHARACTERISTICS AT PRIMARY ELECTRON ENERGIES OF
100-2000 EV WERE STUDIED. THE RESULTS OBTAINED ARE EXPLAINED IN TERMS
OF THE THEORY OF CHANNELING.   FACILITY: LENINGRAD. POLITEKH.
INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

1/2   023

TITLE--SECONDARY ELECTRON EMISSION OF SILICON DIOXIDE SINGLE CRYSTALS -U-

UNCLASSIFIED

PROCESSING DATE--16OCT70

AUTHOR-(03)-SHULMAN, A.R., KORABLEV, V.V., MOROZOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 666-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SILICON DIOXIDE, SECONDARY ELECTRON EMISSION, SINGLE CRYSTAL PROPERTY, CRYSTAL ORIENTATION, ELECTRON BEAM, ELECTRON ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0060

CIRC ACCESSION NO--AP0105157

STEP NO--UR/0181/70/012/002/0666/0668

UNCLASSIFIED

CIRC ACCESSION NO--AP0105157   UNCLASSIFIED   PROCESSING DATE--16OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTAL PLATES OF SIO SUB2
CUT FROM NATURALLY GROWN, TRANSPARENT SINGLE CRYSTAL WITH ALPHA QUARTZ
STURCTURE WERE INVESTIGATED. THE DEPENDENCE OF THE COEFF. OF SECONDARY
ELECTRON EMISSION SIGMA ON THE ANGLE OF INCIDENCE OF PRIMARY ELECTRONS
PHI FOR VARIOUS ENERGIES OF PRIMARY ELECTRONS E SUBP IS GIVEN. THE
CURVES ARE SHIFTED VERTICALLY 1 WITH RESPECT TO THE OTHER. EACH CURVE
IS CHARACTERIZED BY A SERIES OF MAX. AND MIN.; THE POSITIONS OF THE MAX.
COINCIDE WITH THE MAIN CRYSTALLOGRAPHIC DIRECTIONS. A FINE STRUCTURE IS
OBSD. STARTING WITH E SUBP SIMILAR TO 300 EV. DEPENDENCE IS ALSO GIVEN
OF SIGMA ON EP AT VARIOUS PHI IN THE E SUBP RANGE 20-2000 EV. THESE
CURVES HAVE A NON MONOTONIC CHARACTER AND VARIATION IN THE ANGLE OF
INCIDENCE CHANGES THE SHAPE OF THE CURVE. FACILITY: LENINGRAD.
POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

SIBILEV, V. D.

"Statistical Characteristics of Moments of Appearance of Events in a Poisson-Type Stream"

Tr. Sib. Fiz.-Tekhn. In-ta pri Tomsk. Un-te [Works of Siberian Insti-tute of Physics and Technology and Tomsk University], 1973, No 63, pp 239-247 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V178)

Translation: In the first portion of this work, a well-known joint distribution of moments of appearance of events in an unstable Poisson stream with intensity $\lambda(t)$ is produced. In the second portion, these characteristics are calculated on the assumption that $\lambda(t)$ is a random process of simple structure.

1/1   YE. Chepurin

USSR

DOLZHANSKIY, YU. M., MOISEYEV, V. N., SIBILEVA, L. I., and TERENT'YEV, L. N., All-Union Scientific Research Institute of Aviation Materials
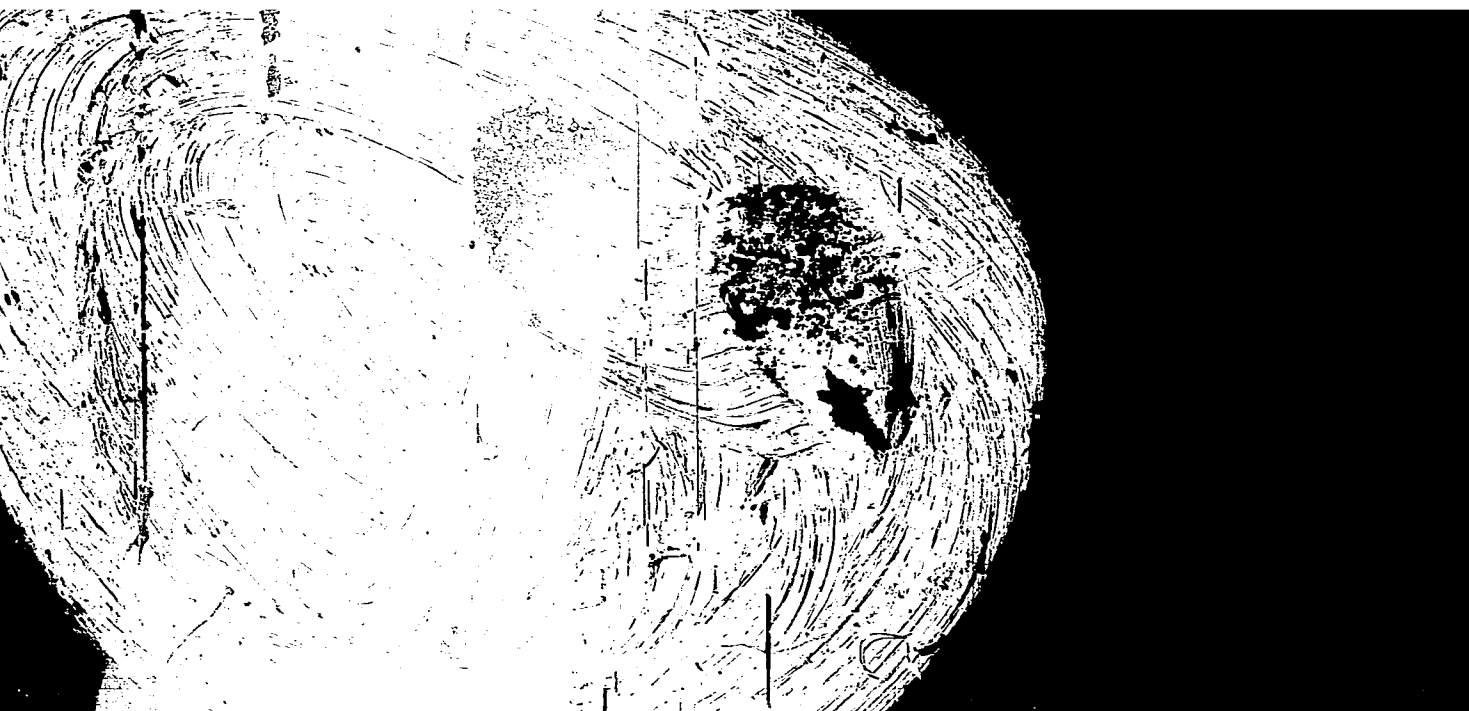
UDC 669.245.018.44

"Investigation of the Statistical Principles of the Effect of Alloying Elements on the Mechanical Properties of Alloys in the Ti-Al-Mo-V System (Type VT16)"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 132-137

Abstract: Studies were made to find the statistical principles for the relationship of the mechanical properties of type VT16 alloys in the annealed and thermally strengthened states to alloy content of Al, Mo, V for three basic forms of heat treatment: annealed, quenched and aged to a tensile strength (TS) greater than or equal to 105 kg/mm^2, and quenched and aged to a TS greater than or equal to 125 kg/mm^2. As the experiment plan, matrix PFE 23 was selected for the following levels of alloying element concentration changes: Al-1.0 and 3.0%, Mo-2.0 and 6.0%, and V-2.0 and 6.0%. Analysis of models for strength and ductility led to the following conclusions. For the manufacture of fasteners, operating under shear, it is recommended to use alloys of average composition: Al ≈ 2.0%, Mo ≈ 6.5%, and V ≈ 4.0% or Al ≈ 3.5%, Mo ≈ 5.0% and V ≈ 4.0%. It was established that these alloys, made from titanium sponge TG-100, ensure a shear strength ≈ 64 kg/mm^2 at a level of reduction in area greater than or 1/2

UNCLASSIFIED   PROCESSING DATE--16OCT70

1/2   023
TITLE--SECONDARY ELECTRON EMISSION OF SILICON DIOXIDE SINGLE CRYSTALS -U-

AUTHOR-(03)-SHULMAN, A.R., KORABLEV, V.V., MOROZOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 666-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SILICON DIOXIDE, SECONDARY ELECTRON EMISSION, SINGLE CRYSTAL
PROPERTY, CRYSTAL ORIENTATION, ELECTRON BEAM, ELECTRON ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0060   STEP NO--UR/0181/70/012/002/0666/0668

IRC ACCESSION NO--AP0105157
UNCLASSIFIED

CIRC ACCESSION NO--AP0105157
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINGLE CRYSTAL PLATES OF SIO SUB2
CUT FROM NATURALLY GROWN, TRANSPARENT SINGLE CRYSTAL WITH ALPHA QUARTZ
STURCTURE WERE INVESTIGATED. THE DEPENDENCE OF THE COEFF. OF SECONDARY
ELECTRON EMISSION SIGMA ON THE ANGLE OF INCIDENCE OF PRIMARY ELECTRONS
PHI FOR VARIOUS ENERGIES OF PRIMARY ELECTRONS E SUBP IS GIVEN. THE
CURVES ARE SHIFTED VERTICALLY 1 WITH RESPECT TO THE OTHER. EACH CURVE
IS CHARACTERIZED BY A SERIES OF MAX. AND MIN.; THE POSITIONS OF THE MAX.
COINCIDE WITH THE MAIN CRYSTALLOGRAPHIC DIRECTIONS. A FINE STRUCTURE IS
OBSD. STARTING WITH E SUBP SIMILAR TO 300 EV. DEPENDENCE IS ALSO GIVEN
OF SIGMA ON EP AT VARIOUS PHI IN THE E SUBP RANGE 20-2000 EV. THESE
CURVES HAVE A NON MONOTONIC CHARACTER AND VARIATION IN THE ANGLE OF
INCIDENCE CHANGES THE SHAPE OF THE CURVE.   FACILITY: LENINGRAD.
POLITEKH. INST. IM. KALININA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

SIBILEV, V. D.

"Statistical Characteristics of Moments of Appearance of Events in a
Poisson-Type Stream"

Tr. Sib. Fiz.-Tekhn. In-ta pri Tomsk. Un-te   [Works of Siberian Insti-
tute of Physics and Technology and Tomsk University], 1973, No 63,
pp 239-247 (Translated from Referativnyy Zhurnal Kibernetika, No 9,
1973, Abstract No 9V178)

Translation: In the first portion of this work, a well-known joint
distribution of moments of appearance of events in an unstable Poisson
stream with intensity $\lambda(t)$ is produced. In the second portion, these
characteristics are calculated on the assumption that $\lambda(t)$ is a random
process of simple structure.   YE. Chepurin

1/1

USSR

UDC 669.245.018.44

DOLZHANSKIY, YU. M., MOISEYEV, V. N., SIBILEVA, L. I., and TERENT'YEV, L. N.,
All-Union Scientific Research Institute of Aviation Materials

"Investigation of the Statistical Principles of the Effect of Alloying Elements
on the Mechanical Properties of Alloys in the Ti-Al-Mo-V System (Type VT16)"

Abstract: Studies were made to find the statistical principles for the
relationship of the mechanical properties of type VT16 alloys in the annealed
and thermally strengthened states to alloy content of Al, Mo, V for three basic
forms of heat treatment: annealed, quenched and aged to a tensile strength (TS)
greater than or equal to 105 kg/mm^2, and quenched and aged to a TS greater than
or equal to 125 kg/mm^2. As the experiment plan, matrix PFE 23 was selected for
the following levels of alloying element concentration changes: Al-1.0 and 3.0%,
Mo-2.0 and 6.0%, and V-2.0 and 6.0%. Analysis of models for strength and
ductility led to the following conclusions. For the manufacture of fasteners,
operating under shear, it is recommended to use alloys of average composition:
Al $\approx$ 2.0%, Mo $\approx$ 6.5%, and V $\approx$ 4.0% or Al $\approx$ 3.5%, Mo $\approx$ 5.0% and V $\approx$ 4.0%. It
was established that these alloys, made from titanium sponge TG-100, ensure
a shear strength $\approx$ 64 kg/mm^2 at a level of reduction in area greater than or
1/2

USSR

DOLZHANSKIY, YU. M., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya
Metallurgiya, No 4, 1973, pp 132-137

equal to 60%. For fasteners, operating in tension, it is recommended to employ
alloys of an average composition: Al $\approx$ 2.5%, Mo $\approx$ 4.5%, and V $\approx$ 4.5%. An
alloy with this composition will have a TS equal to or above 110 kg/mm^2 with a
reduction in area value of $\approx$ 60% when heat treated as follows: annealed at 780°C
for two hours + quenched from 820°C in water for two hours + aged at 570°C for
eight hours. For force parts with mechanical properties at a level of TS $\geq$ 125
kg/mm^2 and reduction in area $\approx$ 55-58%, it is recommended to heat treat this
alloy by quenching from 780°C for one hour in water + aging at 500°C for 16
hours. 3 figures, 2 tables.

2/2

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   018
TITLE--VALUE OF TOMOGRAPHIC OF SPINE EXAMINATION AND PECULIARITIES OF
METHOD IN THE STUDY OF SEVERE FORMS OF SCOLIOSIS -U-
AUTHOR-(02)-RITS, I.A., SIBIRSKAYA, P.V.

COUNTRY OF INFO--USSR

SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 6, PP 26-29

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, BONE GRAFT, ORTHOPEDIC SURGERY, ISSUE
REGENERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1003/0900   STEP NO--UR/9115/70/000/006/0026/0029

CIRC ACCESSION NO--AP0129965
                              UNCLASSIFIED

USSR

UDC: 621.373:530.145.6

ALPATOV, Yu. V., DEMIDOV, M. N., MEDVEDEV, V. D., SEDOV, G. S., SIBIREV, A. V.

"A Single-Mode Gas Laser With Stabilization of Emission Power"

Translation: The paper describes a single-mode helium-neon gas laser which has stable emission power and stable position of the optical axis.

1/1

USSR

UDC: 51

SIBIRKO, A. N.

"Some Problems of Accelerating the Search for Solutions in Sequential Optimization Algorithms"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Studying and Optimizing Systems--collection of works), Kiev, 1971, pp 193-200 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V538)

[No abstract]

1/1

1/2   019   UNCLASSIFIED   PROCESSING DATE--04DEC70

TITLE--GAMMA RAY SPECTRUM OF THE CERIUM 134 YIELDS LANTHANUM 134 YIELDS
BARIUM 134 CHAIN -U-

AUTHOR-(04)-ABDURAZAKOV, A.A., GROMOV, K.YA., ISLAMOV, T.A., SIBIROV, B.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(4), 734-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAMMA RAY, SPECTRUM, CERIUM ISOTOPE, LANTHANUM ISOTOPE, BARIUM
ISOTOPE, IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/2031   STEP NO--UR/0048/70/034/004/0734/0739

ACCESSION NO--AP0138885

TITLE--GAMMA RAY SPECTRUM OF THE CERIUM 134 YIELDS LANTHANUM 134 YIELDS BARIUM 134 CHAIN -U-

AUTHOR-(04)-ABDURAZAKOV, A.A., GROMOV, K.YA., ISLAMOV, T.A., SIBIROV, B.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(4), 734-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAMMA RAY, SPECTRUM, CERIUM ISOTOPE, LANTHANUM ISOTOPE, BARIUM ISOTOPE, IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/2031   STEP NO--UR/0048/70/034/004/0734/0739

CIRC ACCESSION NO--AP0138885

UNCLASSIFIED

2/2   019
CIRC ACCESSION NO--AP0138885
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE PRIME134 CE YIELDS PRIME134 LA
YIELDS PRIME134 BA DECAY CHAIN WAS STUDIED BY 9 GROUPS STARTING IN 1951.
RECENTLY, RADIOACTIVE CE WAS OBTAINED IN THE IRRADN. OF GD FOIL BY 660
MEV P FROM THE DUBNA SYNCHROCYCLOTRON, AND WAS SEPD. BY CHROMATOG.   THE
GAMMA RAY SPECTRUM WAS STUDIED BY USING A GE(LI) SPECTROMETER.   THE
RESULTS ARE COMPARED WITH THOSE OBTAINED RECENTLY BY OZHELEPOV, ET AL.
(1969) AND ABOUL-MALEK AND HAUMANN (1968).   A SCHEME OF LEVELS OF
PRIME134 BA IS PROPOSED.   FACILITY: OB'EDIN, INST, YAD. ISSLED.,
DUBNA, USSR.

USSR

ARAYS, Ye. A., SIBIRYAKOV, G. V.

"The Avto-Analitik Programming System"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology --
Collection of Works], No 3, Khar'kov, 1972, pp 26-27, Discussion 71-77
(Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No
4V685, by the authors).

Translation: The Avto-Analitik system, designed for the performance of
analytic numerical conversions on the BESM-6 digital computer, is studied.

1/1

BOGDANKEVICH, O.V., ZVEREV, M.M., PECHENOV, A.N., SIBIRYAK, I.O.

"On The Divergency Of Radiation Of Lasers Of The 'Radiative Mirror' Type With
Electron Pumping"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 110-111

Abstract: The dependence is studied of the radiation divergence of a semicon-
ductor laser with a "radiative mirror" type resonator and electron beam pumping
on the distance L to the external mirror. (Pumping was conducted with a pulsed
beam of electrons which have an energy of 170 kev, a current density up to
25 a/cm^2, and a duration of 200 nanosec.) A minimum divergence of 7' was observ-
ed at L equals 29 mm and a diameter of the excited region of 300 micron, which
corresponds to the diffraction limit of divergence of the fundamental type of
oscillations. It is shown that an increase of L leads to a decrease of the width
of the longitudinal mode. With L equals 22 mm the measured width of the mode
amounted to $\Delta \lambda \leqslant 0.05$ Å. 1 fig. 4 ref. Received by editors, 28 March 1972

1/1

USSR

SEREBROVSKIY, L. A., SIBIRYAKOV, P. G., LINETS, N. Ye., PA-
NOVA, L. A.   UDC: 8.74

"A System for Automating Programming and Output of Technical
Documentation into a Program for Digital Control Computers
(YaUZA-1)"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Com-
puter Technology and Programming--collection of works), vyp.
7, Moscow, "Sov. radio", 1972, pp 126-133 (from RZh-Kiber-
netika, No 8, Aug 72, Abstract No 8V635)

Translation: The structure and principal technical operational
and technical characteristics are given for a programming auto-
mation system whose input language is the YaUZA universal com-
mand autocode. The system can be used to prepare programs for
an extensive class of digital control computers. The system
is adapted to a specific digital computer by specifying its
parameters and command system.
The system is realized on the M-220 computer. It auto-
matically joins programs into a single large-volume program

1/2

- 64 -

USSR

UDC: 8.74

ARAYS, Ye. A., SIBIRYAKOV, G. V., SHUTENKO, A. V.

"Interpretation System for Solving Large Problems"

V sb. Vopr. programmir. i avtomatiz. proyektir. (Problems of Design Pro-
gramming and Automation--collection of works), Tomsk, Tomsk University,
1971, pp 37-43 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1010)

Translation: The authors describe the "Reader" interpretation system
specialized for solution of large problems on the BESM-4 computer. The
component parts of the Reader system are: a) a library of standard oper-
ators; b) a table of characteristics; c) the working board; d) the Reader
interpretation program. The characteristic of each operator appearing in
the library of standard operators is comprised of: the octal number of
the operator, the instruction for use of the operator, and its description.
The table of characteristics contains information on each operator in the
library of standard operators. The working board is a section of the core
store in which the standard operators are located. It is noted that the
given system does not eliminate possibilities for simultaneous use of the
conventional IS-2 interpreting system.

1/1

USSR

NERUBAYLO, B. V. and SIBIRYAKOV, V. A.

"Stresses in Round Cylindrical Shell Under Local Radial Load"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 25-44

UDC 539.3

Abstract: The round cylindrical shell of finite length is subject to a local radial load which is assumed to be distributed over a square element.

The general differential equations between forces and displacements are solved by expanding them into Fourier trigonometric series.

The solutions are presented in the form of nomographs on fig. 10 to 15 giving the forces and bending moments per unit of length in the longitudinal and circumferential direction as functions of the size of the load carrying square and of the radius/wall 1/2

USSR

SEREBROVSKIY, L. A. et al., Tsifr. vychisl. tekhnika i programmir., vyp. 7, Moscow, "Sov. radio", 1972, pp 126-133

(of the order of hundreds of thousands of commands). Preparation of the program is accompanied by automatic output of all technical documentation, which is formulated with regard to YeSKD requirements. Authors' abstract.

2/2

UDC: 8.74

USSR

SEREBROVSKIY, L. A., SIBIRYAKOV, P. G., LINETS, N. Ye., PA-
NOVA, L. A.

"A System for Automating Programming and Output of Technical
Documentation into a Program for Digital Control Computers
(YaUZA-1)"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Com-
puter Technology and Programming--collection of works), vyp.
7, Moscow, "Sov. radio", 1972, pp 126-133 (from RZh-Kiber-
netika, No 8, Aug 72, Abstract No 8V635)

Translation: The structure and principal technical operational
and technical characteristics are given for a programming auto-
mation system whose input language is the YaUZA universal com-
mand autocode. The system can be used to prepare programs for
an extensive class of digital control computers. The system
is adapted to a specific digital computer by specifying its
parameters and command system. It auto-
The system is realized on the M-220 computer. It auto-
matically joins programs into a single large-volume program

UDC: 8.74

USSR

ARAYS, Ye. A., SIBIRYAKOV, G. V., SHUTENKO, A. V.

"Interpretation System for Solving Large Problems"

V sb. Vopr. programmir. i avtomatiz. proyektir. (Problems of Design Pro-
gramming and Automation--collection of works), Tomsk, Tomsk University,
1971, pp 37-43 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V1010)

Translation: The authors describe the "Reader" interpretation system
specialized for solution of large problems on the BESM-4 computer. The
component parts of the Reader system are: a.) a library of standard oper-
ators; b) a table of characteristics; c) the working board; d) the Reader
interpretation program. The characteristic of each operator appearing in
the library of standard operators is comprised of: the octal number of
the operator, the instruction for use of the operator, and its description.
The table of characteristics contains information on each operator in the
library of standard operators. The working board is a section of the core
store in which the standard operators are located. It is noted that the
system does not eliminate possibilities for simultaneous use of the
___ system   IS-2 interpreting system.

USSR

NERUBAYLO, B. V. and SIBIRYAKOV, V. A., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 25-44

thickness ratio. All quantities are in nondimensional form. There are separate nomographs for individual points of the load carrying square. The distance of the load carrying square from the end of the cylinder is taken into account by means of correction coefficients shown on fig. 16 to 19.

- 108 -

2/2

UDC 621.771.261

USSR

SICHEVOY, A. P., BABICH, V. K., BREZHNEV, L. A., PIROGOV, V. A.,
and OSIPOVICH, S. V.,

"Changes in the Properties of 45G Steel After Rolling on the
Three-Roller 120 Mill"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost',
No 6, Nov-Dec 70, p 38

Abstract: Properties of the 45G steel after heating, rolling
and subsequent cooling under various conditions were investi-
gated. Billets 115 mm in diameter and 600 mm long were heated
at various heating rates up to 1150-1200° by the induction
method, then subjected to shrinkage by rolling. The study of
the macrostructure showed that sulfur and phosphorus distribu-
tion along the billet cross section was satisfactory, and the
magnitude of general and central porosity did not exceed 2
points. Mechanical properties of the billets had not changed
rolling and cooling under various conditions. It is concluded
that low-carbon manganous steel in billets 115 mm in diameter
can be rolled on three-roller transverse-spiral mills in
accordance with the procedure used for carbon steels.

1/1

Radiobiology

UDC 577.391:616.001.28

USSR

KANARIK, U., SIBUL', I., and VAKHER, Yu.

"The Endocrine Stress Syndrome in Chicks Following Gamma-Ray Irradiation"

Tallin, Izvestiya Akademii Nauk Estonskoy SSR, Biologiya, No 3, 1970, pp 277-280

Abstract: A total of 800 white leghorn chicks 10- to 35-days old were irradiated
once with 700 to 1,100 r of Co60 rays. During the first day and 20 to 35 days
after exposure, the relative weight of the adrenals and thyroid markedly increased,
while that of the thymus and spleen decreased. But two years later the weight of
the adrenals and thyroid was normal, but the weight of the thymus and spleen remained
depressed. Apparently a decrease in weight of the thymus and spleen is a more
regular phenomenon associated with development of the radiation endocrine stress
syndrome in chicks than hypertrophy of the adrenals and thyroid.

Forming

UDC 621.771.2

USSR

SICHEVOY, A. P., ROSENTAL', F. YE., TOKMAKOV, A. M., and SHEVGUR, Yu. P.,
Candidates of Technical Sciences

"Increased Production and Quality of Periodical, Large-Diameter Rolling Profiles"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 5, Sep-
Oct 70, pp 26-29

Abstract: A review is made of the operation of the first 120 three-roller mill
for rolling periodical profiles. The technological process and production plan
developed by the All-Union Scientific-Research Institute of Metallurgical Machi-
nery is described. Operational deficiencies are cited and the new rolling mill
stand developed by members of the Institute is described.

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the prevention of the Anophe...
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2/2

64

Vector Studies

UDC 595.771-15(479.224)

USSR

SICHINAVA, Sh. G., Institute of Medical Parasitology and Tropical Medicine imeni S. S. Virsaladze, Ministry of Health Georgian SSR, Tbilisi

"Reestablishment of the Population Density of Anopheles maculipennis Mosquitoes After the Eradication of Malaria in Abkhasiya"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 6, Nov/Dec 72, pp 712-718

Abstract: At present Anopheles mosquitoes of four species occur in Abkhaziya: A. maculipennis, A. hyrcanus, A. claviger, and A. plumbeus. As a result of an extensive application of insecticides (DDT, hexachlorocyclohexane) A. superpictus, which was present in Abkhaziya before, has no longer been encountered there since 1955. After the practical elimination of malaria in 1960 and subsequent relaxation of measures for the control of mosquitoes in Abkhaziya in 1963-67, the population density of Anopheles maculipennis there increased, particularly that of A. maculipennis, reaching a maximum in 1967. As a result, an increased danger of transmission of malaria developed, mainly by A. maculipennis, but also by A. hyrcanus. The proportion of older, epidemiologically dangerous females of A. maculipennis, increased from 0.2-2.0 to 14.0%. This led to a reduction of mosquitoes were carried out to many-sided measures for the control of the numbers of A.maculipennis extent.

84553e Effect of ethyl bromide on the quasilinear lumines-
cence and absorption spectra of biphenyl. Bolotnikova, T. N.;
Sichkar, O. N.; Shtrokirkh, O. Yu. (USSR). Opt. Spektrosk.
1970, 28(1), 172-3 (Russ). The presence of EtBr (I) in frozen
solns. of aromatic hydrocarbons (C_6H_6, PhMe, $C_{10}H_8$) in n-paraf-
fins at 77°K changes their spectral characteristics as a result of
the formation of an unstable charge-transfer complex. The
spectra for frozen solns. of biphenyl (II) were compared with
those for previously studied aromatic hydrocarbons. The addn.
of I in the case of II solns. leads to a hypsochromic shift of the
singlet-singlet absorption bands and to a certain enhancement of
the intensity of the triplet-triplet bands. No changes in the
phosphorescence and fluorescence spectra of II were obsd. in the
presence of I at 77°K. The uv absorption spectrum of 10^{-2} M
soln. of II in I showed a charge-transfer absorption band at 341
nm.   C. Parkanyi

105585j Effect of ethyl bromide on the probabilities of inter-combinational transitions of aromatic hydrocarbons in frozen n-paraffin solutions. Bolotnikova, T. N.; Sichkar, O. N. (USSR). *Opt. Spektrosk.* 1970, 28(1), 46-49 [Russ]. EtBr (0-50%) was added to the solns. of aromatic hydrocarbons (naphthalene, indene, phenanthrene, and Ph_2) in n-paraffins. The effect of the heavy Br ion on the spectral properties (fluorescence I_F, and phosphorescence intensities I_P, lifetimes, and intercombinational transitions) was detd. at 77°K. The addn. of 0-10% EtBr caused an increase of I_P; at EtBr concns, >10% I_P decreased. The probabilities of the transition from the lower excited singlet state into the metastable $k'_{S_1 \to T}$ were not affected by EtBr. I_F of the soln. did not change on EtBr addn. in the tested concn. range. The changes in phosphorescence were due to the changes in the consts. corresponding to the $k'_{T \to S_0}$, and $k'_{T \to S_0}$ metastable to ground state transitions. The probabilities of the latter transitions increased by 1 order in the presence of EtBr.   H. Parizkova

REEL/FRAME
19801899

USSR

UDC 678.643'42'5:678.049.01:537

SICHKAR', V. P., and BOLKHOVITINOV, A. B.

"The Effect of Plasticizers on the Radiational Electroconductivity of Plastic Materials"

Moscow, Plasticheskiye Massy, No 11, 1972, pp 25-27

Abstract: A study was carried out of the effect of plasticizers on radiational electroconductivity [σ_r] of the epoxy resin ED-5 reinforced with polyethylene-polyamine or methyltetrahydrophtalic anhydride. The plasticizers under investigation comprised tricresylphosphate, tributyl phosphate, dioctyl sebacate and the resin DEG-1. The effect of dioctyl phtalate on σ of polystyrene was studied. It was shown that none of the above plasticizers showed any effect on the σ_r of the starting material. However, all of the starting materials were affected by the dose of Co^{60} γ-irradiation, as expressed by the coefficient $\Delta(\sigma_r \sim I)$.

1/1

USSR   UDC 678.743.22.01:537.311

SICHKAR', V. P., and VAYSBERG, S. E.

"Influence of Acceptor-Donor Impurities During the Radiation on the Electrical
Conductivity of Polyvinylchloride"

Moscow, Plasticheskiye Massy, 7, 1973, pp 5-7

Abstract: A study was made of the relationship of the electrical conductivity
(σ) to the dose (I) of γ-radiation from a Co^{60} source for polyvinylchloride
(PVC) containing acceptor impurities (duroquinone, chloranil, and tetracy-
anodimethane) and donor impurities (tritoluene amine). The impurities (0.2
to 0.9 mol %) did not exert a significant influence on either σ or on the
exponent Δ in the equation $\sigma \propto I^{\Delta}$. The conductivity σ x 10^{-15} ohn^{-1}·cm^{-1}
varied from 3.5 for a Δ of 0.88 to 6.6 for a Δ of 0.92 (the maximum Δ was
1.00). The concentration (p) of the carrier current in the conducting zone
can be expressed as $p = N_c e^{E_f/kT}$ where $N_c = 10^{19}$cm^{-1} is the effective
density of the compound near the bottom of the conducting zone and E_f is
the depth of the Fermi quasiplane which changes with T and I. Some values
obtained were $p = 10^9$cm^{-1} and 10^6cm^{-1} for $E = 0.6$ ev and 0.8 ev respectively.
Using $\sigma = pq\mu$, $\mu = 10^{-4}$cm^2/volt·sec and 10^{-1}cm^2/volt·sec for the above values
of E.
1/1

UDC 537.312.5

USSR

VAYSBERG, S. E., SICHKAR', V. P., and KARPOV, V. L.; Scientific-Research
Institute imeni L. Ya. Karpov

"A Study of Radiation-Induced Electric Conductivity in Polymers"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol XIII, No 11, 1971, pp 2502-2507

Abstract: As is known, the electric conductivity of polymers varies sharply
in the presence of ionizing radiation, but returns to its original level after
removal of the latter. Seven polymers were studied in this connection (high-
pressure polyethylene, low-pressure polyethylene, etc.) and for these the
relationship between radiation conductivity σ and dose rate J and temperature
T was determined.

    Definite linear portions of log σ = f(T) were found to agree among them-
selves for all the polymers studied, within the limits of the Rose-Fowler model
(they had the same slope). Areas of temperatures with deviation from that
required by the model were observed, this being explained on the basis of
structural transitions in the polymers corresponding to change in the concen-
tration of traps, a result of the presence of structural defects.

1/1

Therapy

UDC 616.988.2-08

USSR

LOBZIN, V. S., and SICHKO, ZH. V.

"Use of New Antiviral Preparations, Nucleases, for Neuroviral Infections"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 8, 1973, pp 47-60

Abstract: Nucleases (RNAse and DNAse) obtained mostly from cattle pancreas
were demonstrated in clinical trials to be highly efficacious in the treat-
ment of various forms of meningitis, meningoencephalitis, radiculoneuritis,
radiculoganglionitis, etc. They inhibit the replication of several pathogenic
viruses by depolymerizing their nucleic acids without injuring the host's nucleic
acids. Depending on the microstructure of the viruses, ribonuclease is used
in the treatment of diseases caused by RNA viruses (causative agents of mumps,
influenze, tickborne encephalitis, equine encephalomyelitis), while dexo-
syribonuclease is prescribed for diseases caused by DNA viruses (adenoviruses,
causative agents of shingles, smallpox, etc.). Desensitizing drugs must be
used in conjunction with the nucleases.

1/1

UDC: 539.216.22:546.28

USSR

LITOVCHENKO, V. G., LYSENKO, V. S., PRIKHODENKO, V. I., SHUL'MAN, A. Ye.,
KAZAROV, R. Ye., STADNIK, A. V., Institute of Semiconductors, Academy of
Sciences of the UkrSSR

"Effect of Structural Factors of Single-Crystal Silicon Films on Their Surface Properties"

Abstract: A comparative study is made of a number of volumetric charac-
teristics which depend on the volumetric imperfection of silicon films
grown on sapphire substrates (mobility of the charge carriers, etc.), as
well as surface-sensitive characteristics (zone flexure, density of fast
traps, etc.). It is shown that the electrical properties of the surface
of strongly imperfect films depend on the volumetric structure.

1/1

UDC 621.315.592:546.28

USSR

LITOVCHENKO, V.G., LYSENKO, V.S., PRIKHODENKO, V.I., SHUL'MAN, A.YE.,
KAZAROV, R.YE., STADNIK, A.V.

"Effect Of Structural Factors Of Monocrystalline Silicon Films On Their Surface Properties"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1972, Issue 7, pp 38-40 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B82)

Translation: A comparative study is made of a number of volumetric characteristics which depend on the defectiveness of the volume of Si films grown on sapphire substrates (mobility of charge carriers and others), and of the surface-sensitive characteristics (bending of zones, density of fast traps, and others). It is shown that the electrical properties of the surface of strongly defective films depend on the volume structure. 4 ref. Summary.

1/1   - 121 -

UNCLASSIFIED

PROCESSING DATE--13NOV70

1/2   033
TITLE--EXTERNAL RANDOM FORCES AND EQUATIONS FOR CORRELATION FUNCTIONS IN
THE THEORY OF NONEQUILIBRIUM FLUCTUATIONS -U-
AUTHOR-(02)-KOGAN, SH.M., SHULMAN, A.YA.

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THIS PAPER DEMONSTRATES THE
EQUIVALENCE OF TWO METHODS EVOLVED AT PRESENT FOR THE DESCRIPTION OF
NONEQUILIBRIUM FLUCTUATIONS IN SEMICONDUCTORS. THE FIRST, THE METHOD OF
EQUATIONS FOR CORRELATION FUNCTIONS, OR THE METHOD OF MOMENTS, CONSISTS
IN THE SOLUTION OF EQUATIONS JUST FOR CORRELATION FUNCTIONS. THESE
EQUATIONS ARE ESTABLISHED EITHER ON THE BASIS OF PHYSICAL CONSIDERATIONS
OR ARE DERIVED.   THE RIGHT HAND PART OF SUCH AN EQUATION IS
PROPORTIONAL TO A SIMULTANEOUS CORRELATION FUNCTION WHICH DEVELOPS, IN
TURN, EITHER FROM STATISTICAL OR THERMODYNAMIC CONSIDERATIONS (IN
EQUILIBRIUM SYSTEMS) OR A SEPARATE EQUATION DERIVED FOR IT. WITH THE
SECOND APPROACH, THE LANGEVIN METHOD, THE EVOLUTION IN TIME OF THE
FLUCTUATIONS THEMSELVES IS STUDIED. THE LEFT SIDE OF THE CORRESPONDING
EQUATION IS OBTAINED BY LINEARIZATION OF THE EQUATION FOR THE AVERAGE
VALUE OF THE MAGNITUDE CONSIDERED. IN THE RIGHT SIDE, HOWEVER, EXTERNAL
RANDOM FORCES (OR EXTERNAL FLUXES) ARE INTRODUCED WHICH DESCRIBE THE
FLUCTUATION SHOCKS FROM THE DIRECTION OF THE THERMOSTAT ACTING ON THE
SYSTEM BEING INVESTIGATED. FOR THE SAKE OF SIMPLICITY THE AUTHORS
COMPARE THE METHOD OF MOMENTS WITH THE METHOD OF EXTERNAL FLUXES FOR THE
CASE OF SPATIAL, HOMOGENEOUS FLUCTUATIONS IN STEADY STATE AND
HOMOGENEOUS GAS. THE PROOF IS ALSO EASILY EXTENDED TO THE CASE OF
SPATIAL, NONHOMOGENEOUS FLUCTUATIONS. 10 REF. RECEIVED BY EDITORS 20
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PHYSICS

Crystals and Semiconductors

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"External Random Forces and Equations for Correlation Functions In the Theory of Nonequilibrium Fluctuations"

Abstract: This paper demonstrates the equivalence of two methods evolved at present for the description of nonequilibrium fluctuations in semiconductors. The first, the method of equations for correlation functions, or the method of moments, consists in the solution of equations just for correlation functions. These equations are established either on the basis of physical considerations or are derived. The right-hand part of such an equation is proportional to a simultaneous correlation function which develops, in turn, either from statistical or thermo-dynamic considerations (in equilibrium systems) or a separate equation derived for it. With the second approach, the Langevin method, the evolution in time of the fluctuations themselves is studied. The left side of the equation for the average value of the tion is obtained by linearization of the equation for the average value of the magnitude considered. In the right side, however, external random forces (or

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external fluxes) are introduced which describe the fluctuation shocks from the direction of the thermostat acting on the system being investigated. For the sake of simplicity the authors compare the method of moments with the method of external fluxes for the case of spatial, homogeneous fluctuations in steady-state and homogeneous gas. The proof is also easily extended to the case of spatial, nonhomogeneous fluctuations. 10 ref. Received by editors 20 November 1969.

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USSR

SHULMAN, I. SH., Moscow

"Sufficient Conditions for Asymptotic Stability of Solution of the Problem of Determination of Course by Inertial Navigation"

Moscow, Mekhanika Tverdogo Tela, No 5, 1970, pp 52-56

Abstract: The conditions of asymptotic stability for the problem of determining the course of an object moving along the surface of a terrestrial sphere are studied when information is available on board the craft from external sources concerning the parameters of its motion relative to the earth. Continuous input of information on the latitude allows the error in determination of the course resulting from inaccuracy of input of the initial value to be gradually reduced to zero. In the case of discrete arrival of information on latitude, solution of the problem is possible with continuous arrival of data on the relative velocity of the object throughout the discretization interval.

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